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AUTHOR Ellis, Susanne D.
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ABSTRACT

Trends in enrollments and degrees for physics and astronomy students are examined, based on the American Institute of Physics' annual Survey of Enrollments and Degrees. A total of 787 physics and/or astronomy degree-granting departments were contacted. Information is included on: physics enrollments and degrees awarded by academic year, 1974-1986; undergraduate and graduate enrollments and degrees by physics degree-granting schools by degree type, 1974-1986; introductory physics enrollments in physics degree-granting institutions by geographic region, 1975-1986; undergraduate physics majors by geographic region and level of institution, 1985-1986; trends in entering U.S. and foreign graduate physics students, 1976-1986; foreign graduate physics students and number of teaching assistantships by region and type of institution, 1985-1986; full- and part-time graduate physics enrollment by type of institution, 1976-1986; actual and projected number of physics doctorates granted, 1975-1990; number of physics degrees granted by sex and minority group status, 1984-1985; trends in astronomy enrollments and degrees, 1976-1986; and astronomy enrollments (1985-1986) and degrees (1984-1985) by type of institution. (SW)

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ENROLLMENTS AND DEGREES

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by Susanne D. Ellis AIP Pub. No. R-151.23 June 1986

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ENROLLMENTS AND DEGREES

by Susanne D. Ellis

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The Survey of Enrollments and Degrees focuses on 787 physics and/or astronomy degree-granting departments to determine the extent to which they compete for and attract physics and astronomy students. This survey was initiated 25 years ago, when AIP began to monitor the number of physics degrees conferred. Gradually the scope was expanded to include comprehensive enrollment data from entering freshmen to the advanced levels of graduate study. In the mid-1970's this annual survey was further expanded to include astronomy degree-granting departments, of which there were 68 in 1985–86; their data are presented on the last page of this report. Thus, the major portion of the information presented in this summary report deals with detailed analyses of physics students and degree recipients.

Table I classifies institutions according to the highest physics degree granted and presents the yearly changes in those numbers since the early 1980's. During that five-year period only the number of master's institutions continued the decline that began in the 1970's. The decline among bachelor's institutions, of which there were 550 in the mid-1970's, appears to have levelled off, while doctoral programs never exceeded 175.

Table I. Institutions by highest physics degree offered, 1981–1986.

Academic year	Doctoral granting	Master's granting	Bachelor's granting
1981–82	167*	104	485
1982–83	164*	94	488
1983–84	165*	92	490
1984–85	168*	90	487
1985–86	168*	91	485

**Four of these institutions have two physics doctorate-granting departments. They are Stanford U., U. of CA-Davis, Harvard U. and Cornell U.*

The physics degree production presented in **Figure I** displays a variety of trends. Four trends represent the three levels at which physics degrees are granted, because we distinguish between terminal master's degrees and those granted enroute to a higher physics degree. Bachelor's degrees clearly indicate a further increase as the class of 1985 passes the five-thousand mark. Doctorates remained at the level they reached in 1984, but are expected to increase above the one-thousand mark in the next year or two. This projection is supported by the continued increase in the number of master's degrees granted enroute to the Ph.D. Terminal master's degrees, on the other hand, appear to fluctuate between 620 and 660 in recent years.

Figure I. Physics degrees awarded by academic year, 1974–1985

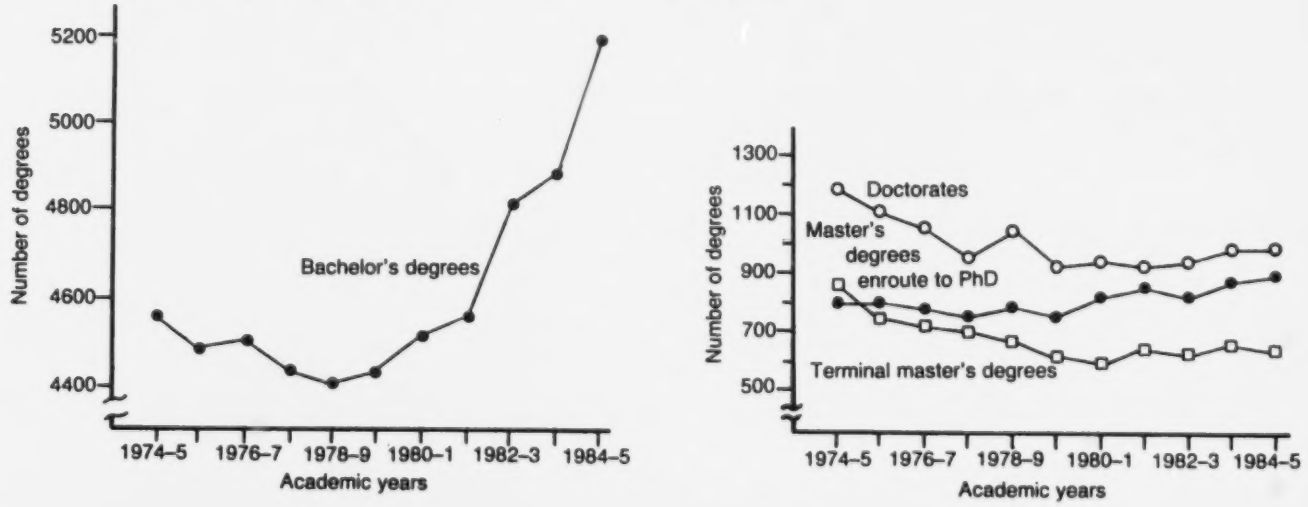

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Table II. Physics enrollments and degrees awarded by academic year,1974–1986.

Academic year	Number of physics degrees granted (July 1 to June 30) Bachelor's	Master's	Doctor's	Undergraduate physics major enrollment Juniors	Seniors	Graduate physics student enrollment* Total	1st year
1974–75	4571	1650	1167	5660	4909†	10 410	2668
1975–76	4487	1570	1111	5888	4922†	10 372	2646
1976–77	4517	1469	1051	5711	4930†	9 991	2624
1977–78	4457	1422	971	5820	4975††	9 835	2499
1978–79	4416	1428	1033	5835	4964	9 813	2458
1979–80	4440	1370	912	5696	4942	9 647	2439
1980–81	4513	1387	927	5905	5091	9 934	2564
1981–82	4558	1476	912	6386	5372	10 173	2637
1982–83	4795	1426	921	6299	5580	10 429	2630
1983–84	4878	1521	971	6303	5658	10 922	2855
1984–85	5188	1518	972	6601	6009	11 337	2863
1985–86				6689	6092	12 011	2981

**Includes part-time students.*
†This total has been adjusted by 500 students who were seniors for more than one year.
††This total has been adjusted by 300 students who were seniors for more than one year.

Table III. Undergraduate and graduate enrollments and degrees by institution type, 1974–1986.

Academic year	Number of physics degrees granted (July 1 to June 30) Bachelor's	Master's	Doctor's	Undergraduate physics-major enrollment Juniors	Seniors	Graduate physics-student enrollment* Total	1st year
			Doctorate granting institutions				
1974–75	2191	1318	1167	2780	2420	9 295	2205
1975–76	2182	1249	1111	2983	2505	9 241	2163
1976–77	2184	1186	1051	2862	2502	8 867	2182
1977–78	2218	1164	971	2851	2590	8 852	2138
1978–79	2158	1183	1033	2937	2579	8 864	2107
1979–80	2142	1151	912	2696	2491	8 744	2072
1980–81	2123	1161	927	2765	2568	9 062	2223
1981–82	2179	1281	912	2996	2671	9 273	2275
1982–83	2192	1210	921	2962	2645	9 524	2288
1983–84	2195	1319	971	2955	2824	10 006	2495
1984–85	2460	1286	972	3059	3105	10 357	2443
1985–86				3120	2961	10 937	2574
			Master's granting institutions				
1974–75	699	332		881	741	1115	463
1975–76	604	321		916	811	1131	483
1976–77	658	283		840	761	1078	442
1977–78	590	258		832	752	983	361
1978–79	541	245		795	694	949	351
1979–80	585	219		705	650	903	367
1980–81	589	226		868	655	872	341
1981–82	532	195		917	734	900	362
1982–83	554	216		877	752	905	342
1983–84	610	202		830	722	916	360
1984–85	658	232		974	781	980	420
1985–86				1014	865	1074	407
			Bachelor's granting institutions				
1974–75	1681			1999	1748		
1975–76	1701			1989	1606		
1976–77	1675			2009	1667		
1977–78	1649			2137	1633		
1978–79	1717			2103	1691		
1979–80	1713			2295	1801		
1980–81	1801			2272	1868		
1981–82	1847			2473	1967		
1982–83	2049			2460	2183		
1983–84	2073			2518	2112		
1984–85	2070			2568	2123		
1985–86				2555	2266		

**Includes part-time students.*

The data on which **Figure I** is based are presented in **Table II** together with undergraduate and graduate enrollment trends. Although neither the juniors nor the seniors in 1985–86 have shown major increases, it should be pointed out that undergraduate attrition has declined in recent years. The physics bachelors in the class of 1985 represent 82% and 86% of the juniors and seniors respectively. The corresponding percentages for the class of 1982 were 77 and 85.

As the total number of graduate students continues to increase more rapidly than its first-year component, we can conclude that graduate students require more time to complete their degrees than in prior years.

To focus on how successful different colleges and universities are in attracting physics students, we divide the institutions into three categories, as discussed in connection with **Table I**, and use **Table III** to examine their separate enrollment trends and degree productions. Having shown that neither the juniors nor the seniors continued to increase in 1985–86, we find that a different picture emerges when we examine the undergraduate enrollment patterns at each of the three types of institutions. For example, the non-doctoral institutions reported larger classes of seniors in 1985–86 than in the previous year while the doctorate-granting departments indicated a decline. Juniors, on the other hand, concentrated their modest increases at the two types of graduate institutions rather than at the 4-year colleges. Another enrollment pattern that points out differences among the three types of physics departments is attrition. Although not included in **Table III**, a comparison of the sophomores of two years ago with last year's juniors and this year's seniors points to a much greater attrition at the 4-year colleges (~12%/year) than at the master's and doctoral institutions (~3%/year).

The overall increase in the number of bachelor's degrees produced in 1984–85 is primarily attributable to the greater number of graduates from the two types of graduate institutions where a higher retention rate during the junior and senior years accounts for the increases. The number of master's degrees conferred was almost identical to that of the previous year but master's institutions reported granting an increasing share of the total.

With a 10:1 distribution of graduate students between the two types of graduate departments, we find that the 6% overall increase in total graduate enrollment comprises 5% at the doctoral institutions and 10% at the master's institutions.

Having presented an overview of the physics enrollment and degree trends in the first three tables and the first figure of this report, we allow **Tables IV–XII** and the remaining figures to focus on more detailed analyses of the physics pipeline.

Table IV. Introductory physics enrollments in physics-degree-granting institutions by geographic region, 1975–1986.

Geographic region	1975–76	1980–81	1985–86
New England	22 000	21 500	19 000
Mid Atlantic	48 000	43 500	46 000
E. N. Central	52 500	54 500	53 500
W. N. Central	21 500	23 500	25 500
S. Atlantic	37 000	34 000	38 500
E. S. Central	14 500	15 000	16 000
W. S. Central	30 000	30 000	28 000
Mountain	19 000	21 000	25 000
Pacific	34 500	36 000	39 000
Total	279 000	279 000	290 500

New England–Conn., ME, Mass., N. Hamp., RI, VT; Middle Atlantic–NJ, NY, Penn.; East North Central–Ill., Ind., Mich., Ohio, Wisc.; West North Central–Iowa, Kansas, Minn., MO, Nebr., N. Dak., S. Dak.; South Atlantic–Del., D.C., Fla., GA, MD, NC, SC, VA, W. Va.; East South Central–Ala., KY, Miss., Tenn.; West South Central–Ark., LA, Okla., Tex.; Mountain–Ariz., Colo., Idaho, Mont., Nev., N. Mex., Utah, Wyo.; Pacific–Alas., Cal., Hawaii, Oreg., Wash.

Introductory physics enrollments

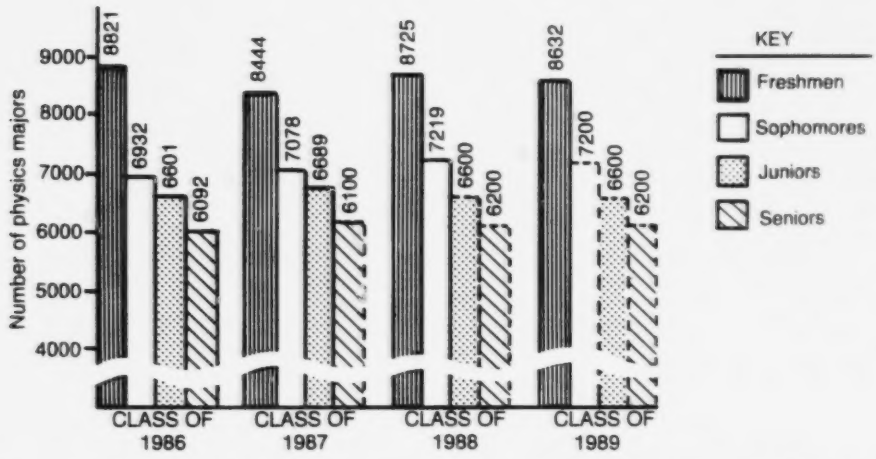
An introductory physics course taken during the freshman or sophomore year has become a requirement for many undergraduates who are not potential physics majors. Furthermore, there are students whose intellectual curiosity motivates them to enroll in an introductory physics course. In this way, collectively the physics degree-granting institutions enroll close to 300,000 introductory physics students each fall, and the aforementioned two groups comprise 97% of that enrollment; only 8000 students are "declared" physics majors at this early undergraduate level. As degree requirements once again become more stringent in the 1980's, introductory physics enrollments can be expected to continue to increase above the totals shown in **Table IV**.

Focusing only on 1985–86, **Table V** analyzes the introductory enrollment according to the design of the courses. Thus the potential engineering majors comprise 40% of the total and the second largest group (approximately one quarter of the enrollment) consists of the pre-med and other health-related majors. The category "other" was intended to include humanities and other liberal arts majors, but as it turned out a large number of chairpersons grouped all undergraduates who had not yet declared a major as part of this category.

Table V. Introductory physics enrollments, 1985–86.

Enrollment in introductory physics courses designed for:		Institution type: Bachelor's granting N	Bachelor's granting %	Master's granting N	Master's granting %	Doctorate granting N	Doctorate granting %	Total N	Total %
engineering majors		21 120	29.8	16 640	37.2	77 820	44.5	115 580	39.8
physical sciences majors		17 650	24.9	6 890	15.4	26 930	15.4	51 470	17.7
biology, health-related majors		19 280	27.2	10 250	22.9	41 800	23.9	71 330	24.6
other		12 830	18.1	10 960	24.5	28 330	16.2	52 120	17.9
Total introductory enrollment	N	70 880		44 740		174 880		290 500	
	%		24.4		15.4		60.2		100%

Figure II. Actual and projected number of undergraduate physics majors



Note: Each cluster of bars shown in **Figure II** *depicts the freshmen, sophomores, juniors and seniors of four successive graduating classes. The most recent estimate of freshman physics majors is 8632 and refers to September 1985. Based on the attrition of earlier classes 6200 of them are expected to become senior physics majors in 1988–89 and are presented above as the "class of 1989."*

Undergraduate physics majors

Although most institutions do not require their undergraduates to declare a major until the beginning of the junior year, the requirements for a physics bachelor's degree usually call for an early start. Consequently the majority of physics department chairpersons can estimate the numbers of freshmen and sophomores who are likely to be physics majors in their departments. By using the estimated totals for freshmen and sophomores together with the actual reports of juniors and seniors over a four-year period, we can determine the attrition between the freshman and senior years for each graduating class. **Figure II** follows the freshman physics majors of September 1982 through four years of undergraduate study to become the graduating class of 1986. Last September's estimate of freshman physics majors was 8632, and they are projected to yield 6000 seniors who will become the class of 1989.

A more detailed distribution of the four levels of undergraduate physics majors is presented in **Table VI**, which shows these enrollments for nine geographic regions as well as by type of degree-granting institution. The last column of this table, "Fifth-year undergraduates," consists of 900 students who need an additional summer or term to complete their degree requirements. Such delays can be attributed to any of a number of reasons; among them are completing the senior level on a part-time basis or having transferred from a junior college. Approximately 10% of the 1985 physics bachelors fall into each of these two categories. Thus, by separating those 897 seniors from the others, physics majors at each level are counted only once.

For all institutions combined the attrition between freshman and senior levels is 30%, as indicated in **Figure II**. However, the attrition rates at each of the three types of institutions range from 20% to 40%, with doctoral institutions corresponding to the lowest attrition and the four-year colleges experiencing attrition rates close to 40%.

Table VI. Undergraduate physics majors by geographic region and type of institution, 1985–86.

Geographic region*	Estimated** no. of freshmen	Estimated** no. of sophomores	Number of juniors	Number of seniors	Fifth-year undergraduates
New England	647	615	553	524	49
Mid Atlantic	1568	1369	1177	962	92
E. N. Central	1352	1064	966	949	96
W. N. Central	695	599	552	471	53
S. Atlantic	1414	1159	869	780	109
E. S. Central	388	324	319	257	48
W. S. Central	671	547	514	481	79
Mountain	553	420	434	449	104
Pacific	1344	1122	1305	1219	267
Total	8632	7219	6689	6092	897
Doctorate-granting inst.	3852	3123	3120	2961	507
Master's-granting inst.	1135	926	1014	865	150
Bachelor's-granting inst.	3645	3170	2555	2266	240

** See Table IV for explanation of geographic region.*

***Estimates of potential physics majors made by the physics department chairpersons.*

Graduate enrollment

When the total graduate physics enrollment reversed its ten-year decline in 1980 to resume an upward trend, it was the foreign students who caused this change in trend. At the undergraduate level foreign students comprise only a steady 6% because the great majority of them enter the U.S. with the equivalent of bachelor's degrees and the intention to complete doctorates. **Table VII** focuses on the first-year graduate physics students and the ratios of U.S. to foreign citizens among them. Ten years ago one out of four students was foreign; in 1985–86 two out of five students are foreign. The separate trends indicated by these two groups of entering graduate students differ greatly. U.S. students declined from 2000 to 1500, and subsequently increased to 1700, where they levelled off, while foreign students increased on a year-by-year basis.

Financial support for foreign students at all levels of graduate study has been the focus of many questions. Their total number has risen above 4500, and **Table VIII** indicates that half of them hold teaching assistantships in the physics department that enrolls them. However, the geographic and institutional distributions presented in **Table VIII** show that the supply of these teaching assistantships is not evenly distributed. For example, in the southern regions over 60% of the foreign students hold teaching assistantships. Also, at master's institutions 76% of the foreign students receive support, whereas the Pacific region appears to be that in which a foreign student is least likely to be offered an assistantship.

Table VII. Trend in entering U.S. and foreign graduate physics students, 1976–1986.

Academic year	No. of first-year graduate students U.S.	Foreign	Total	% foreign students of total
1976–77	1987	637	2624	24.2
1977–78	1851	648	2499	26.0
1978–79	1840	618	2458	25.2
1979–80	1700	739	2439	30.3
1980–81	1720	844	2564	32.9
1981–82	1654	983	2637	37.3
1982–83	1576	1054	2630	40.1
1983–84	1763	1092	2855	38.2
1984–85	1747	1116	2863	39.0
1985–86	1721	1260	2981	42.3

Given the high level of support for graduate physics students, it follows that a large proportion of them study on a full-time basis. However, by examining the graduate enrollment for the two types of graduate institutions separately, **Table IX** indicates that only doctoral institutions adhere to that pattern; master's institutions have always enrolled a large proportion of part-time students, and in 1985–86 part-time students comprised 42% in these institutions.

Table VIII. Foreign graduate physics students and those holding teaching assistantships among them, by region and type of institution, 1985–86.

Geographical region		Doctorate granting institutions: Total no. of foreign grad. students	Doctorate granting institutions: Total no. of foreign TA's	Master's granting institutions: Total no. of foreign grad. students	Master's granting institutions: Total no. of foreign TA's	All institutions: Total no. of foreign grad. students	All institutions: Total no. of foreign TA's
New England		507	238	19	13	526	251
Mid Atlantic		982	447	6	1	988	448
E. N. Central		711	327	85	67	796	394
W. N. Central		227	115	36	29	263	144
S. Atlantic		432	264	41	21	473	285
E. S. Central		118	73	33	30	151	103
W. S. Central		392	254	41	30	433	284
Mountain		279	138	8	5	287	143
Pacific		611	233	37	36	648	269
Total	N	4259	2089	306	232	4565	2321
	%		49.0%		75.8%		50.8%

Table IX. Full-time and part-time graduate physics enrollment by type of institution, 1976–1986.

	Total number of graduate students: Institution type: Master's granting			Doctorate granting			
Academic year	Full-time	Part-time	Sub-total	Full-time	Part-time	Sub-total	Total
1976–77	576	507	1083	8 119	789	8 908	9 991
1977–78	546	437	983	8 174	678	8 852	9 835
1978–79	468	481	949	8 185	679	8 864	9 813
1979–80	550	353	903	8 059	685	8 744	9 647
1980–81	484	388	872	8 302	760	9 062	9 934
1981–82	543	357	900	8 555	718	9 273	10 173
1982–83	566	339	905	8 712	812	9 524	10 429
1983–84	569	347	916	9 285	721	10 006	10 922
1984–85	604	376	980	9 647	710	10 357	11 337
1985–86	620	454	1074	10 119	818	10 937	12 011

Table X. Unfilled assistantships for first-year graduate physics students, September 1985.

Geographic region*	Doctoral departments with unfilled assistantships: 0	1–2	3–5	≥6	No. of unfilled ass'tships	No. of 1st yr. grad. students	Master's-granting depts. with unfilled assistantships: 0	1–2	3–5	No. of unfilled ass'tships	No. of 1st yr. grad. students
New England	18	2	0	0	3	304	4	0	0	0	18
Mid Atlantic	28	1	0	0	1	486	6	1	0	1	21
E. N. Central	16	3	2	0	9	450	20	3	0	4	129
W. N. Central	10	1	2	0	9	121	11	3	0	5	46
S. Atlantic	21	3	1	1	15	251	10	3	1	8	50
E. S. Central	6	3	0	0	5	76	5	2	1	7	37
W. S. Central	13	3	0	0	3	221	6	3	1	6	44
Mountain	13	2	1	0	7	188	2	1	0	1	14
Pacific	20	1	0	1	10	477	4	3	1	7	48
Total	145	19	6	2	62	2574	68	19	4	39	407

**See Table IV for explanation of geographic region.*

Having examined the relationship between financial support, citizenship, and study status, let us now focus on the general availability of assistantships irrespective of other characteristics. On that basis we can conclude from **Table X** that more support is available than graduate students to claim it. In particular **Table X** indicates that if all assistantships were filled, the enrollment at doctoral departments would only be 2% larger, but master's institutions would increase their enrollment by 10%. On a geographic basis unfilled assistantships form an uneven distribution where the South-Atlantic region has the largest proportion of unfilled assistantships and New England the smallest.

Degrees granted

The median number of years of graduate study required to complete a physics doctorate remains between five and six years and has a range from three to more than ten years. The high correlation between the first-year graduate students at Ph.D.-granting institutions and the number of doctorates granted five years later is the basis for our projection presented in **Figure III**. In recent years, between 42% and 47% of a given year's entering graduate students complete their doctorates five or six years later. The rapid increase in foreign graduate students began in 1979, so that possible changes in the number of years of graduate study and the attrition rate are only beginning to emerge. Thus we expect the number of physics doctorates to be conferred during the mid to late 1980's to be between 950 and 1050 per year.

The data summarized in three rows of **Table III** are presented in greater detail in **Table XI**. This table compares the contributions that three types of institutions make to the production of new physicists. Each year the smallest group of graduates is the one receiving master's degrees enroute to higher physics degrees from master's institutions. Consequently, these graduates are obliged to transfer to Ph.D. institutions to continue their studies.

Terminal master's degrees are primarily granted by the Ph.D. institutions rather than by master's institutions, as shown in **Table XI**, which indicates a 3:1 ratio for that degree production.

Figure III. Actual and projected number of physics doctorates granted, 1975–1990

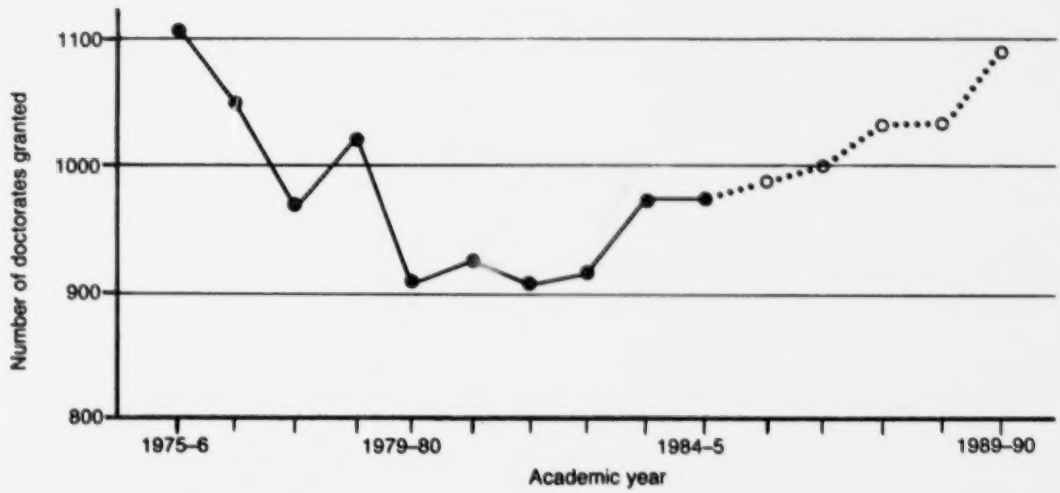


Table XI. Physics degrees by type of institution and geographic region, 1984–85.

Geographic region*	Bachelor's degrees			Master's degrees		Terminal master's degrees		Doctorates
	Institution type**			Institution type**		Institution type**		Institution type**
	I	II	III	II	III	II	III	III
New England	171	27	372	3	99	3	48	134
Mid. Atlantic	481	62	431	0	162	13	81	182
E. N. Central	347	152	305	40	141	45	92	159
W. N. Central	220	79	149	9	18	11	27	43
S. Atlantic	272	74	274	6	95	13	59	107
E. S. Central	102	60	50	2	12	17	12	25
W. S. Central	125	49	170	6	69	25	33	71
Mountain	81	11	215	0	54	4	33	45
Pacific	271	144	494	8	165	27	86	206
Subtotal	2070	658	2460	74	815	158	471	972
				889		629		
Total	5188			1518				972

**See Table IV for explanation of geographic region.*

***Institution type indicates the highest physics degree offered; type I = bachelor's degree, type II = master's degree, type III = doctorate.*

Another detail shown in **Table XI** is the geographic distribution of all physics degrees granted in 1984–85. While the total number of doctorates granted did not change, regional shifts occurred, such as a 15% decrease in doctorates granted in the East North Central and a 10% increase in the Pacific region. In fact the Pacific region also increased its production of bachelor's degrees over the previous year at all three types of institutions.

Closely tied to the data we collect and analyze on foreign student enrollment in physics programs are our data on minority groups, because a majority of the members are foreign citizens. We define minority groups as those who have a small but noted representation among the physics degree recipients, a definition that clearly applies to women physics graduates. Thus **Table XII** focuses on the most recent academic year, 1984–85, and lists specific minority groups by sex, but irrespective of citizenship. The sources for this information are (1) a report of women and black degree recipients from physics department chairpersons and (2) identification with minority groups by individual graduates. The second source forms part of two student surveys* conducted annually by the American Institute of Physics. The response rates from these two surveys differ significantly; only between 55% and 65% of the students return their questionnaires, whereas over 90% of the physics departments complete theirs. Thus one needs to view the number of minority degree recipients, other than blacks, as lower limits. A noteworthy change from the previous year is the increase in women physics doctorate recipients from 7% to 8%.

**Survey of Physics and Astronomy Bachelor's Degree Recipients, AIP Pub. No. R-211.17.*
Graduate Student Survey, AIP Pub. No. R-207.18

Table XII. Number of physics degrees granted by sex and minority group* status, 1984–85.

Type of degrees	Sex	Total no. of degrees	Black	Am. Ind.	Hispanic	Oriental	Asian Indian	Arab
Bachelor's	Men	4443	121	6	35	86	15	26
	Women	745	20	2	7	24	3	7
	Total	5188	141	8	42	110	18	34
Master's enroute	Men	801	10	0	6	98	15	17
	Women	88	2	0	0	11	3	1
	Total	889	12	0	6	109	18	18
Terminal master's	Men	550	12	1	4	22	5	6
	Women	79	0	0	1	11	2	1
	Total	629	12	1	5	33	7	7
Doctorate	Men	898	7	2	14	79	30	15
	Women	74	1	0	1	8	8	0
	Total	972	8	2	15	87	38	15

**Minorities in AIP surveys are defined as groups with a low representation in the physics community, but ones whose participation has aroused considerable interest.*

ASTRONOMY

Table XIII. Trend in astronomy enrollments and degrees, 1976–1986.

Academic year	No. of astronomy degrees granted (July 1 to June 30)				Undergraduate astronomy major enrollment		Graduate astronomy enrollment	
	Bachelor's	Master's enroute	Terminal master's	Doctor's	Juniors	Seniors	Total	1st year
1976–77	184	58	35	96	290	270	790	170
1977–78	177	64	31	93	295	270	803	171
1978–79	165	42	42	90	270	249	710	145
1979–80	165	27	27	106	262	242	698	154
1980–81	156	34	24	82	275	238	686	164
1981–82	181	54	15	70	252	224	647	142
1982–83	138	61	22	81	274	232	670	178
1983–84	137	51	22	74	242	217	688	154
1984–85	145	56	16	66	239	212	716	151
1985–86					232	252	711	170

All 67 degree-granting astronomy departments contributed their information to the Survey of Enrollments and Degrees. Included in that total are 42 doctorate-granting departments of which only eleven are combined with physics departments and 31 of them function separately. The ten-year-trend data presented in **Table XIII** is similar in format to the physics data presented in **Table II**. In an attempt to interpret the fluctuations that occur in the trend data we need to refer to the combined physics and astronomy departments where difficulties of definition arise when astronomy students are granted physics degrees.

By dividing the 67 institutions on the basis of the highest astronomy degree granted we find in **Table XIV** that over 80% of the astronomy bachelor's degrees are granted by doctoral departments. However, the major contributors to the enrollment in introductory astronomy courses are the physics departments, which enroll 55% of those students.

Table XIV. Astronomy* enrollments 1985–86 and degrees 1984–85 by type of institution.**

		Type I	Type II	Type III	Total
Astronomy departments	Combined	16	1	11	28
	Separate	6	2	31	39
	Total	22	3	42	67
Astronomy degrees	Bachelor's	22	5	118	145
	Master's enroute	–	2	54	56
	Terminal master's	–	2	14	16
	Doctor's	–	–	66	66
Astronomy enrollments	Introd. courses for science majors	499	51	2 603	3 153
	Introd. courses for nonscie. majors	6322	1718	43 335	51 375
	Introd. astronomy courses offered in physics departments	–	–	–	66 102
	Total introductory enrollments				120 630
	Junior astronomy majors	42	10	180	232
	Senior astronomy majors	48	11	193	252
	First-year graduate students	–	7	163	170
	Total graduate enrollment	–	25	686	711

**This survey includes only degree-granting astronomy departments.*

***"Institution type" indicates the highest astronomy degree offered; type I = bachelor's degree, type II = master's degree, type III = doctorate.*